

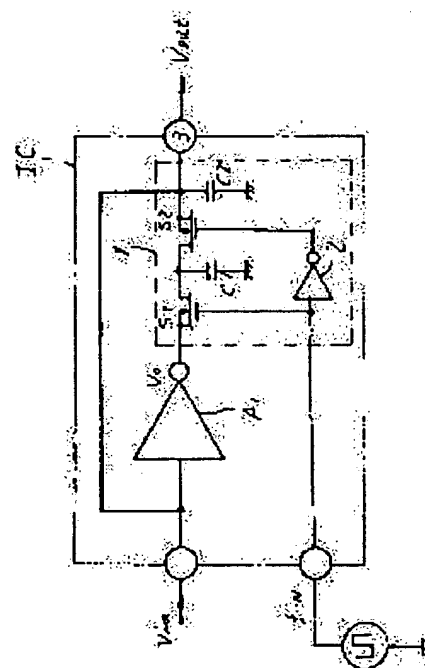
PATENT ABSTRACTS OF JAPAN(11)Publication number : **60-058705**(43)Date of publication of application : **04.04.1985**

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H03D 7/00(21)Application number : **58-166614**(71)Applicant : **HITACHI LTD**(22)Date of filing : **12.09.1983**(72)Inventor : **MATSUDA TOSHIHIRO****(54) FREQUENCY CONVERTING CIRCUIT****(57)Abstract:**

PURPOSE: To perform frequency conversion with simple circuit constitution by providing a time constant circuit whose time constant is varied by a control signal to a feedback circuit of an amplifier.

CONSTITUTION: The feedback circuit of the amplifier A1 is provided with a switched capacitor filter (SCF)1 whose time constant is varied by a frequency of control signal f_{in} so as to change the frequency of a feedback signal in response to a frequency of the control signal thereby attaining frequency conversion. Since the switched capacitor acts equivalently like a resistor having a resistance $R=1/f_{in} \cdot C$ in the SCF1, when the frequency of the control signal f_{in} is small or large, the resistance value of the switches S1, S2 is respectively large or small. Thus, the time constant changes by varying the pulse width of the signal f_{in} , that is, the frequency. When the control signal f_{in} is changed into a low frequency in this state, the time constant of the SCF1 is large, the frequency of an output signal V_{out} is decreased and a frequency ($f_{in} > V_{out}$) is obtained. Further, when the signal f_{in} is varied into a high frequency, the frequency signal ($f_{in} < V_{out}$) is obtained.

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